COMPARISON OF STUDENTS' PERFORMANCE IN A MANAGERIAL ACCOUNTING COURSE TAUGHT IN BLENDED LEARNING, TRADITIONAL CLASSROOM, AND ONLINE SETTING

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ABSTRACT

This study takes an empirical look at the three-way comparison of different learning environments (blended, face-to-face, and online) for an introductory Managerial Accounting course. The research compares student's midterm exam, final exam and total final grade results in this course that was taught by the same instructor using blended learning, face-to-face, and online media delivery. An Analysis of Variance test was used on students' performance outcome in this course to determine if a significant difference existed. This research demonstrates that there is no significant difference in the three different learning environments. It concluded that course instruction and pedagogy are more important for student learning than the type of media delivery and instructors should focus their efforts on the quality of designing and developing course' content.

Keywords: online learning, blended learning, students' performance

INTRODUCTION

Online learning is attaining acceptance and being approved by higher education institutions around the globe. Many schools have long experimented with separate learning environments to accommodate the needs of their students. Along with the traditional face to face classroom (F2F), we have seen the use of distance education (e.g., correspondence courses, televised courses, online courses and, lately, blended learning (BL). In the last decade, online learning has grown up to be a leading growth sector in higher education. According to the Sloan Survey of Online Learning (2013), 32% of all registered students enrolled in at least one online course, resulting in an overall rise in online learning to 6.7 million students during the fall 2011 term, an increase of 570,000 students over the previous year (Allen & Seaman, 2013).

Online learning activists have stated that online learning provides extra flexible access to content and instruction and is cost-efficient by enabling instructors to handle more students while maintaining learning quality that is equivalent or comparable to face-to-face instruction (F2F). Other researchers advocate that online education has generated a shift in the way higher education institutions offer their programs (Bassoppo-Moyo, 2006). However, educators continue to call into question the quality of student performance and learning in an online environment compared to classroom environments, (Parsons-Pollard, Diehl Lacks, & Hylton Grant, 2008). In addition, online learning has some barriers from students' point of view as reported that students are often discouraged due to problems with the technology, lack of communication and feelings of isolation, lack of prompt or clear feedback from the instructor, and from confusing instructions on the course website (Crow, Cheek, & Hartman, 2003; Sikora

& Carroll 2002). Marino (2000) also stated that some students had difficulty adjusting to the structure of online courses, managing their time in such environments, and maintaining self-motivation. This creates a distinct necessity to motivate the less independent student (Salmon, 2002). These problems put forward some programs experience high attrition rates as a result (Bennett, 2000). Therefore, the need for a finding the middle ground between the traditional face to face classroom (F2F) setting and online learning leads us towards a new approach to teaching and learning, which known as blended learning (BL) or hybrid (Rogers, 2001). BL has advanced rapidly, with expectations that it will become the "new normal" in course delivery (Norberg, Dziuban, & Moskal, 2011, p. 207). BL combines the most desirable elements of traditional face-to-face and online learning in order to find enhanced ways of supporting students in reaching the learning objectives and providing them with the best potential learning and teaching experiences (Bonk & Graham, 2006). However, operational definitions and taxonomies developed for BL environments currently lack the general consent that researchers need (Graham, 2013). The North American Council for Online Learning (NACOL, 2008) defines the blended learning setting as the combination of online delivery of content with the best features of classroom interaction and live instruction to personalize learning, permit thoughtful reflection, and differentiate instruction from student to student across a diverse group of learners. BL has many advantages as acknowledged by several research studies such as Osguthorpe and Graham (2003) acknowledged six benefits of blended learning as (a) pedagogical richness, (b) access to knowledge, (c) social interaction, (d) personal agency, (e) cost effectiveness, and (f) ease of revision. Blended learning delivers immediate feedback for students, face-to-face interaction with the teacher during learning, the flexibility of handling different content, and improves students' learning experience in developing their abilities and inspires students to take responsibility for their own learning (Abraham, 2007; Brown, Sivabalan, McKenzie, & Booth, 2002; Cooner, 2010; Garrison & Kanuka, 2004; Milheim, 2006).

This study first provides a literature review of students' performance in an online setting environment. Next, students' performance in an introductory managerial accounting course in a blended learning (BL) setting and in the online setting is compared with the traditional classroom setting using three different learning measures. Finally, discussion, conclusions, and limitations of the study are presented.

Prior Research in Online Education

An examination of over 200 studies comparing the differences between distance education (including online) and face-to-face classes shown mixed results, suggesting that further studies are desirable to determine the effectiveness of online instruction (Bernard, et al., 2004). Authors of the study concluded that "methodology and pedagogy are more important than media in predicting achievement" (p. 399), and they encouraged instructors of online classes to focus their efforts on quality course design rather than the environment in which it is presented. This argument is consistent with the findings of some studies, which have found no significant differences between online and face-to-face student achievement (Fortune, Shifflett, & Sibley, 2006; Herman & Banister, 2007; Koory, 2003; Tallent-Runnels, et al., 2006; Warren, & Holloman, 2005; Weber & Lennon, 2007).

A recent meta-analysis (Means, Toyama, Murphy, Bakia, & Jones, 2009) concluded that the success of online learning approaches appears quite broad across different content and learner types. However, most prior studies were conducted in non-technical settings, and the outcomes might not be applied to technical courses such as accounting (Arbaugh, 2005; Bryant, Kahle, & Schafer, 2005). Another problem with prior research is that the vast majority of studies used students' final grades to measure the effectiveness of student learning. Other measures are required to add insight into the ways in which student performance might vary across instructional methods (Arbaugh, et al., 2009; Kan & Cheung 2007).

Online learning studies in accounting as a specialized field are relatively few and have addressed topics such as instructors' descriptions of their experiences with online courses, comparison of student performance in different learning environments and students' satisfactions with online learning. Comparison of student performance in different learning environment studies yield mixed results. Some studies have concluded that online learning is as effective as classroom learning. For example, Gagne and Shepherd (2001) found that an online environment was as effective as a classroom in terms of student learning and that students' course evaluations were similar, although online students were less satisfied with instructor availability than face-to-face students. Basile and D'Aquila (2002) found no significant differences in a study of 128 students in four sections of principles in a financial accounting course taught by two different instructors after controlling for differences based on the course instructor. Chen and Jones (2007) compared a classroom MBA course and online MBA course and reported insignificant differences for final grades and overall evaluations of the course and instructors, but reported some student preferences for group work in the classroom course. Keller, Hassell, Webber, and Johnson (2009) reported no significant difference in final grade between students in a classroom and online introductory managerial accounting course.

Some research studies have concluded that students in a classroom or online environments tend to outperform their counterparts in face-to-face settings. Campbell, Floyd and Sheridan (2002) stated that students in online principles of accounting course performed significantly better on a comprehensive multiple-choice exam than those in a classroom course and were more satisfied with the course and the instruction. Abraham (2007) tested the participation and performance of graduate engineering students enrolled in two sections of a financial management course in two different semesters, with one section using a traditional classroom approach and the other section using a blended learning approach. Students in the classroom environment displayed increased participation in non-compulsory assignments and achieved higher marks in both in-session and final examinations. Stivason, Saunders, and Price (2008) found that students in an online introductory accounting course performed better on assessments than students in a classroom. Jones and Chen (2008) reported that MBA accounting students in blended learning sections had more positive group work experiences and more positive perceptions of instructor feedback compared to students in a face-to-face section.

In contrast, other studies have revealed that students in online tend to under-perform their face-to-face counterparts. Vamosi, Pierce and Slotkin (2004) reported that online students' satisfaction and perceptions of effectiveness in the delivery of course materials were lower than that of students in a classroom when class content rotated between live lectures and live lectures captured for viewing over the Internet during the second half of the course in a financial

accounting course. Similarly, Chen, Jones, and Moreland (2010) found that online students received lower mean scores than face-to-face students in three of four areas studied in an intermediate-level cost accounting course.

Most of these aforementioned studies utilized students' final grades when comparing the effectiveness of the online method to face to face classroom or blended delivery. In addition, these research studies frequently failed to control for differences in teaching and grading formats where two or more instructors delivered the course content or by the same instructor but over more than one semester. Thus, it is recommended that researchers should use well-designed strategies to ensure better evidence about student learning in online learning or BL environments (Means et al., 2009; Reeves, 2005; Tallent-Runnels et al., 2006). Thus, the main purpose of this study is to contribute to the current stream of online learning literature by (1) examining the student performance using three different measures of learning and (2) controlling for instruction and grading formats by having the same instructor teach BL, F2F, and online sections in the same semester using the same measurements of learning outcome between the three types of delivery. As a result, differences in factors such as institutional environments, grading standards, and instructional teaching style are minimized.

METHOD

Research Design

A quasi-experimental research design was implemented for students registered in three sections in the fall 2013 term of an introductory managerial accounting course taught by the same instructor. A student self-selected into each BL or F2F or online section is employed in this study. It assumes that students would enroll in a section offering the teaching mode that would best maximize their utilities such as grades, more cost-efficient, and more flexible access to content and instruction. This study has a high degree of internal validity and achieves as close a comparison as possible between F2F, BL and online sections of having the same instructor taught all sections and eliminating differences across sections in confounding factors such as institutional milieu, grading standards, and instructional teaching style. Furthermore, efforts were made to ensure that students in the three learning environments, participated in the same learning activities, assignments, and discussions in addition to having access to the same textbook and other learning aids such as assignment solutions, PowerPoint slides, and previous examinations and related solutions.

Measures of Student Learning

Students' performance was compared with three different measures of learning, consisting of midterm and final examinations (both held on campus) and total marks. Students in BL group were required to register at WileyPlus Course Management Systems to perform the twelve weekly online assignments. Students in online group were required also to register at WileyPlus Course Management Systems to perform the twelve weekly online assignments and the midterm exam.

The twelve weekly assignments corresponded to the twelve chapters required for the course and consisted of true/false statements, multiple choice questions, and problem-solving questions requiring calculations, analyzes, or short answers. Each assignment was graded as a pass or fails with two attempts at each question. These weekly assignments were critical to keep BL and online students active while providing learners with timely and meaningful feedback and assessment in the BL and the online environment. This created an element of motivation and an educational design that promotes a more active, collaborative, and participatory learners as those commonly found in the face-to-face environments.

A common midterm and final examinations were administered on campus to all students in both F2F and BL learning environments and at the same time through the internet for online section. Student performances on the midterm examination, the final examinations, and total marks were used to perform three-ways comparison among the three different learning environments for the fall 2013 term.

Statement of Hypotheses

The null hypotheses for this study are:

1. H_o: In the midterm exam, there is no statistically significant difference in students' performance among the F2F, BL and online sections.

2. H_o: In the final examination, there is no statistically significant difference in students' performance among the F2F, BL and online sections.

3. H_o: In the total marks, there is no statistically significant difference in students' performance among the F2F, BL and online sections.

Data Collection Procedures

The results presented below only include data from students who enrolled and completed all requirements for the course. There were 104 students in the blended learning section (BL), 59 students in face to face traditional classroom section (F2F) and 185 registered for the online section.

STATISTICAL ANALYSIS AND RESULTS

For each hypothesis, the Analysis of Variance test was used at 0.05 level of significance for comparing the respective variables of the three teaching modes. This method was applied by a majority of prior research studies in comparing the effectiveness of the online method with blended and face to face delivery. This test is appropriate because the independent or grouping variable is nominal (approach = BL, F2F, and online) and the dependent variable in each case is ratio scale. Summary performance measures for students in the three teaching modes and related tests in the fall 2013 are presented in table 1 through table 3.

Table 1- below demonstrates the results of Analysis of Variance test that was performed to test whether the students' performance on midterm exam mean scores differs among the F2F, BL, and online students. The results indicate that the average performance of students in the F2F section was not significantly different from that of students in the BL section or in the online section at F-Value 0.136 which indicated that variances between F2F, BL, and online sections were not different at the 0.873 significance level. The average score on midterm exam in the F2F section (79.29%) was not significantly different from the average score of the midterm exam of BL students (78.34%) or the online section (79.18%). We accept the first null hypothesis that there is no statistically significant difference in students' performance between F2F, BL classroom and online students in the midterm examination mean scores.

Table 1. ANOVA Test of Students' Performances in The Midterm Exam

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	51.050	2	25.525	.136	.873
Within Groups	64856.545	345	187.990		
Total	64907.595	347			

Table 2- below demonstrates the results of Analysis of Variance test that was performed to test whether the students' performance on final exam mean scores differs among the F2F, BL, and online students. The results indicate that the average performance of students in the F2F section was not significantly different from that of students in the BL section or in the online section at F-Value 0.626 which indicated that variances between F2F, BL, and online sections were not different at the 0.535 significance level. The average score on the final exam in the F2F section (58.34%) was not significantly different from the average score of the final exam of BL students (56.75%) or the online section (56.44%). We accept the second null hypothesis that there is no statistically significant difference in students' performance between F2F, BL classroom and online students in final examination mean scores.

Table 2. ANOVA Test of Students' Performances in The Final Exam

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	245.671	2	122.836	.626	.535
Within Groups	67650.062	345	196.087		
Total	67895.733	347			

Table 3- below demonstrates the results of Analysis of Variance test that was performed to test whether the students' performance on total marks mean scores differs among the F2F, BL, and online students. The results indicate that the average performance of students in the F2F section was not significantly different from that of students in the BL section or in the online section at F-Value 0.464 which indicated that variances between F2F, BL, and online sections were not different at the 0.629 significance level. The average score on total marks in the F2F section (65.38%) was not significantly different from the average score of the total marks of BL students (63.90%) or the online section (64.09%). We accept the third null hypothesis that there is no

statistically significant difference in students' performance between F2F, BL classroom and online students in total marks mean scores.

Table 3. ANOVA Test of Students' Performances in The Total Marks

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	131.305	2	65.652	.464	.629
Within Groups	48833.789	345	141.547		
Total	48965.094	347			

DISCUSSION

Online learning supporters state that online learning allows for further autonomy as it provides students with flexible access to course material and instruction at any time, from any place, while maintaining timely constructive feedback. To add to its benefits, it is cost-efficient and enables instructors to handle more students while upholding a learning quality that is equivalent or comparable to face-to-face instruction. Nevertheless, educators continue to call into question the quality of student performance and learning in an online environment compared to the performance of students who attend traditional face-to-face classroom classes (Parsons-Pollard et al., 2008). In addition, online learning has some shortcomings from students' point of view as reported that students are often discouraged due to problems with the technology, lack of communication and feelings of isolation, and lack of prompt or clear feedback from the instructor. This leads us towards a new approach to teaching and learning, which called blended learning (BL) or hybrid. Though numerous studies have been done on the effectiveness of online learning or BL, the majority of them addressed the effectiveness of distance education in non-technical studies. This being the case, the findings cannot be carried over to other technical areas of study such as accounting programs (Arbaugh, 2005; Bryant et al 2005). In addition, the vast majority of these studies used students' final grades when comparing the effectiveness of the online method or BL to the F2F setting, which may not be sufficient to produce meaningful results. The current study examined academic achievement between undergraduate students in an introductory managerial accounting course (technical field) in BL classroom setting and students taking the same course in an F2F classroom setting and online setting. Students' academic achievements were measured by the analysis of scores from three different outcomes, as oppose to only considering the final grade, in order to be able to have a more concrete overview of the students' performance.

The findings of this study support what has been reported in previous research; namely, in showing that BL learning or online setting can be as efficient as classroom learning in many respects regardless of the platform (BL, F2F, online) used. This fact reinforces the notion that the media of delivery is not as important as the instructional strategies applied (Bernard et al., 2004; Clark, 1983, 2001; Means et al., 2009). In view of these findings, not only should the development and use of online programs continues, but also several implications emerge pertaining to a future classroom or online program development. Nonetheless, to see the success of online learning or BL grow, it is vital that the quality and carefulness be put into the design and delivery of the course material. Online instructors should focus on encouraging online learners to interact with each other and with the instructor in order to develop a close relationship

in the virtual realm, opening the doors to active learning and free interchange of knowledge. It is also important for the instructor to facilitate higher level thinking skills, and promote problem - solving through interactive problem-based activities. This is especially critical in the online environment where an element of creativity is needed to identify and design educational experiences that can be as active, collaborative, and participatory as those commonly found in the face-to-face environments. Furthermore, to attain a high level of success as online educational instructors, one should be able to quickly adapt and shift their role from just teaching to coaching and facilitating the learning process. They should encourage student-faculty interactions and promote cooperation among students. They should persuade active learning, emphasize time management through assessment and provide prompt feedback.

CONCLUSION

In just over a decade, online learning and lately BL have become innovative forms of teaching in higher education worldwide. With innovation comes challenges, and educators face just that, as they strive to fully understand how to use this great learning technique. A primary focus for all educators involved in online instruction is the learning outcomes. The major focus of this study was to compare the learning outcomes of students' performance between those in a BL setting, a F2F classroom and those in an online setting. This was achieved using three different learning outcomes to better assess and demonstrate the effectiveness of the three types of media delivery in an introductory managerial accounting course. The results of this study revealed that students registered in the BL or online sections were as successful as students enrolled in the F2F classroom section. Students were able to learn the course material in these types of settings. The results from this study support the findings of prior research in that student' performances in BL or online courses are comparable to those of students in traditional classes. One may well also conclude that the teaching style and the pedagogy are far more imperative for student learning than the type of media delivery. Furthermore, instructors of BL or Online classes should dedicate their efforts in designing and developing a quality course outline which motivate and keep learners constantly involved.

LIMITATIONS OF THE STUDY

Despite the fact that this study has provided us with further insight into the realm of BL or Online learning, some limitations were observed. These limitations include the fact that the study was conducted at a single university and for a single course, managerial accounting, which was taught by one instructor. Furthermore, the assignment of students to each group was not random as the students had the choice of enrolling in any group, assuming students would enroll in the teaching mode that would best maximize their utility in terms of grades, cost-efficient, and more flexible access to content and instruction. This self-selection would not affect the robustness of the study because the students were all from the same school and taking a core course which is required for all undergraduate business major students. This allowed for the student's profile to be comparable in the three teaching modes. This being the case, the findings of this study cannot be generalized to other settings. Even though the study's results were informative, this study does not promote one medium of delivery (BL, F2F or Online) over another, nor does it attempt to measure the effect of teacher/student and student/student interaction on learning outcomes.

This study concentrated on the form of delivery as the main factor influencing students' performance in the course. Nevertheless, other factors could have influenced the results such as previous online course experience, proficiency with a particular classroom web page such as WileyPlus Management System, work experience and other student demographics. Although the results obtained are not a general representation of similar schooling environments, as depicted by the aforementioned limitations, this study benefited from internal validity that resulted from having one instructor teaching all learning environments (BL, F2F, and Online) sections. This directly eliminates the differentiation in factors such as institutional milieu, grading standards, and instructor teaching style. All the same, further research needs to be conducted in order to provide information to support the robustness and reliability of this study's findings. A central focus, which should be tackled in future research, is whether or not students can continue to produce acceptable achievement scores when classroom formats are applied to upper-level courses where the courses concentrate on a more defined and specialized subject matter in various degree programs.

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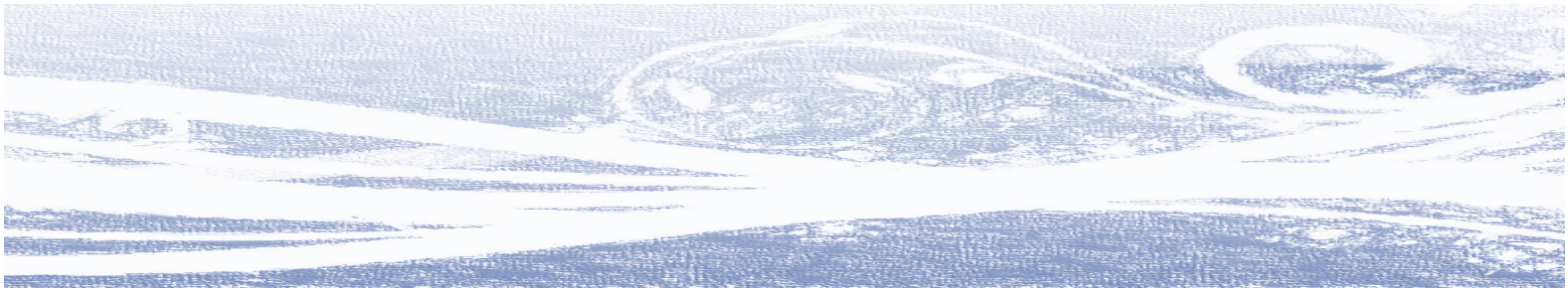

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